

ABSTRACT

A built-in jitter measurement circuit for a VCO(voltage-controlled oscillator) and a PLL(phase-locked loop) is disclosed. The circuit includes
5 a divider for dividing frequency of a signal, a time to digital converter (TDC) for converting the period of the divided signal into digital values, a variance calculator for calculating variance of the period of the divided signal, a mean calculator for calculating mean value of the period
10 of the divided signal, a encoder and counter for encoding and calculating the period of the divided signal, and a state controller as a controller for all other components. The circuit disclosed utilizes output clock of an opened-loop circuit to be measured and a divider for
15 increasing jitter of the original signal. By measuring the bandwidth of a closed-loop circuit, accordingly, jitter of output clock of an opened-loop or an closed-loop circuit is measured by correlating the measured bandwidth and the jitter values from extrapolation.